

# Sustainability and Quality Management: How Strategic Plans Reduce Environmental and Social Risks

Hassanin H. Hatef<sup>1</sup>, Adnan Rheem Nour Ali<sup>2</sup> and Nuha Abdullah Anber<sup>3</sup>

<sup>1</sup>Almuthanna University, IRAQ

<sup>2</sup>College of Economics & Administration, Al-Muthanna University, Al-Muthanna, IRAQ

<sup>3</sup>Ministry of Education Studies and Research Centre, IRAQ

<sup>1</sup>Corresponding Author: [hussnenhussein@mu.edu.iq](mailto:hussnenhussein@mu.edu.iq)



[www.ijrah.com](http://www.ijrah.com) || Vol. 5 No. 2 (2025): March Issue

Date of Submission: 20-02-2025

Date of Acceptance: 25-02-2025

Date of Publication: 05-03-2025

## ABSTRACT

The study aimed to clarify the role played by Total Quality Management (TQM) and its impact on sustainable development. This study sought to explain the most important theoretical and practical foundations of TQM, which focuses on achieving precision in work, managing sustainable quality within the organization, and highlighting the importance of TQM in the higher education system. The study also aimed to demonstrate the significance of TQM in promoting sustainable development.

To achieve the study's objectives, a questionnaire was developed by reviewing several previous studies related to the current research, as well as articles and peer-reviewed scientific research. Data were analyzed using the SPSS program through the following measures: simple regression analysis, one-way analysis of variance, arithmetic mean, standard deviation, and coefficient of variation. The study population consisted of 844 individuals, including faculty members, supporting staff, and administrators at the new facilities of Al Qadisiyah university. The study relied on an analytical approach, given its suitability to the study's objectives and questions.

One of the key findings of the study was the presence of a statistically significant positive impact of TQM on sustainable development when applied to the new facilities at Al Qadisiyah university. There was also a positive impact of TQM on the economic, social, and environmental dimensions of sustainable development. The study found no differences in the impact of TQM on sustainable development due to demographic factors.

The study recommended the involvement of senior management and employees in implementing TQM dimensions in the new facilities, linking the university's outputs to the labor market, serving the community, and promoting the use of modern technologies to ensure continuous development and improvement.

**Keywords-** Quality, Total Quality Management, Development, Sustainable Development, Higher Education.

## I. INTRODUCTION

Advanced nations prioritize education as a fundamental element of sustainable development, such as Germany, Northern European countries, and Malaysia, which have taken education as a primary driver of progress and civilization. In Egypt, however, there has been insufficient attention to monitoring the necessary resources for developing the education system to achieve sustainable development, unlike countries such as Singapore, East Asian nations, China, and

Rwanda. Total Quality Management (TQM) has shown great interest in sustainable development, with some thinkers emphasizing that the era of quality is one of the key pillars of the new educational management model. This model addresses the massive economic, social, and environmental changes, as well as technological advancements, and attempts to adapt to them to position society in a global perspective. TQM and educational reform are two sides of the same coin, and it can be said that TQM is the real solution to the challenges nations face in the coming decades.

To apply the philosophy of TQM in organizations, it must move beyond theory to practical implementation. After understanding the concept of TQM, it must become an integral part of the organization's operations, implemented from the top of the executive hierarchy to its base. This is a long-term process consisting of specific, sequential stages executed on a continuous basis.

The importance of higher education and its development to achieve sustainable development is a pressing and significant responsibility for every society. This means equal attention to all workers in the development process, while protecting decent living opportunities and natural systems for future generations. Achieving full employment for graduates will require higher levels of growth and continuous development, necessarily aligned with environmental development.

**Previous Studies:**

The following is a review of some previous studies, divided into five themes:

1. The relative importance of applying TQM in Iraqi public universities.
2. The level of organizational reputation in Iraqi public universities.
3. The impact of TQM on enhancing the reputation of Iraqi public universities.
4. The relative importance of quality standards in organizational reputation.
5. The role of quality standards in improving the impact of TQM on organizational reputation in Iraqi public universities

**Research Problem:**

The main problem lies in the difficulty of integrating the principles of total quality management with the requirements of environmental sustainability in organizations. Many companies face major obstacles in applying these principles due to a set of obstacles that affect the implementation of sustainable quality strategies. These obstacles include Lack of awareness and knowledge: The lack of sufficient knowledge among employees and management about the importance of integrating total quality with environmental sustainability practices

Financial and technical resources: Some organizations face difficulty in allocating sufficient budgets or investing in modern technology that supports the implementation of sustainable quality practices  
Resistance to change: The existence of resistance from employees or leaders to incorporating new concepts that may affect the usual daily operations within the organization  
Legislative restrictions and environmental legislation: Environmental laws and regulations may be pivotal, but some organizations may find it difficult to comply with them due to regulatory restrictions or continuous changes in government policies

Lack of effective measurement systems: The lack of effective tools or indicators to measure quality and environmental performance jointly may make it

difficult for organizations to monitor and analyze their progress in achieving quality and environmental sustainability goals. Cultural challenges: Different societies have different views of environmental sustainability practices, which leads to difficulty integrating these principles in culturally diverse work environments.

**Importance of the research:**

This research aims to analyze the obstacles facing organizations in integrating Total Quality Management with Environmental Sustainability, focusing on how these obstacles affect the achievement of common goals. Understanding these obstacles helps in developing effective strategies to overcome them and implement them successfully. It also contributes to enhancing the competitiveness of organizations, and achieving sustainable development at the environmental, social and economic levels.

**Research objectives:**

Study the obstacles facing organizations in implementing and applying Total Quality Management practices in the context of environmental sustainability  
Analyze the influential factors that hinder the integration of quality and sustainability into organizations' strategies  
Propose solutions to overcome these obstacles and achieve effective integration between Total Quality Management and Environmental Sustainability.

**Research Questions:**

- What are the main obstacles facing organizations in integrating Total Quality Management with Environmental Sustainability?
- How do financial and technical resources affect the application of sustainable quality practices?
- What is the role of leadership in overcoming resistance to change and challenges related to the application of sustainable quality?
- What are the strategies that can be adopted to overcome organizational and cultural obstacles?

## II. LITERATURE REVIEW

The literature indicates that Total Quality Management is based on the principles of continuous improvement and customer focus, while environmental sustainability focuses on preserving the environment and achieving efficiency in the use of resources. By studying the literature, it can be noted that the obstacles to integrating these two concepts are related to the lack of a comprehensive vision within organizations and ignoring environmental factors in quality strategies. Some studies also indicate that companies that adopt sound environmental practices may face challenges in directing their investments towards technologies and innovations that support environmental sustainability.

**Results:** The study concluded that Kuwaiti universities have increased productivity through the application of TQM and its principles, aiming to achieve excellence,

differentiate from competitors, and improve the quality of the educational process

Study by Ali bin Saeed Al-Rubaie and Nasser Al-Saqr (2002): "The Impact of Leadership and Administrative Cooperation on Human Resource Development to Achieve Sustainable Development: A Field Study in the Ministry of International Cooperation Objectives:

- To identify cultural issues related to sustainable development
- To identify challenges facing cultural research in Oman
- To explore the potential of utilizing cultural heritage for sustainable development
- To present models of research projects in cultural heritage
- To define sustainable development and its dimensions
- To explore the positive and negative impacts of modern technology on sustainable development
- To examine the effects of COVID-19 on sustainable development
- To identify the perceptions of administrative leaders in higher education about TQM
- To determine the impact of TQM on sustainable development in higher education
- To explore the impact of TQM elements on sustainable development

### III. RESEARCH GAP

The research gap in this study lies in the lack of recent scientific studies examining the impact of TQM on sustainable development, particularly in the context of new facilities at Al Qadisiyah university. Previous studies have primarily focused on large and medium-sized organizations, with limited research on this topic in the higher education sector.

#### *Research Hypotheses*

**Main Hypothesis 1:** There is no statistically significant positive impact of TQM on sustainable development when applied to the new facilities at Al Qadisiyah university

- There is no statistically significant positive impact of TQM on the economic dimension of sustainable development
- There is no statistically significant positive impact of TQM on the social dimension of sustainable development
- There is no statistically significant positive impact of TQM on the environmental dimension of sustainable development

**Main Hypothesis 2:** There are no differences in the impact of TQM on sustainable development due to demographic factors when applied to the new facilities at Al Qadisiyah university

- There are differences in effect of total quality management on sustainable progress due to gender
- There are differences in the influence of TQM on long-term development due to age-
- There are differences in the effect of TQM on sustainable development due to educational level
- There are differences in the impact of TQM on sustainable development due to experience.
- There are differences in the effect of total quality management on sustainable development due to job level

#### *Research Objectives:*

The study's problem lies in the question: "What is the impact of Total Quality Management on sustainable development when applied to the new facilities at Al Qadisiyah university Academic Importance: The study tests the impact of TQM on sustainable development in higher education at Al Qadisiyah university Practical Importance The study provides results and recommendations that can help in implementing TQM and achieving sustainable development in the new facilities at the university.

- To identify the impact of TQM on sustainable development when applied to the new facilities at Al Qadisiyah university
- To reveal the importance of TQM in the higher education system-
- To highlight the importance of sustainable development dimensions in the new facilities at Al Qadisiyah university
- To understand faculty members' perceptions of sustainable development in the new facilities

### IV. RESEARCH METHODOLOGY

The study used an analytical approach, analyzing data related to TQM as an independent variable and sustainable development as a dependent variable. The study population included faculty members, supporting staff, and administrators at public and private universities

#### *Key Terms*

**Total Quality Management (TQM):** A set of activities carried out by an organization to achieve value for all stakeholders, including the university, employees, and students.

**Sustainable Development:** Development that meets the needs of the present without compromising the ability of future generations to meet their own needs  
**Higher Education Quality:** The process of applying standards to improve the quality of educational products and services.

#### *Theoretical Framework*

TQM is defined as a set of standards and characteristics that must be present in all elements of the educational process to achieve the needs of stakeholders TQM aims to improve performance continuously through the optimal use of resources

**1- Sustainable Development**

Sustainable development aims to improve the quality of life while maintaining ecological balance. It involves the integration of economic, social, and environmental dimensions.

**2- Higher Education**

Higher education is the final stage of formal education, providing qualifications and skills for employment.

**Research Tool**

A questionnaire was developed based on previous studies and peer-reviewed research. The questionnaire included three sections: demographic information, TQM, and sustainable development. Data were analyzed using SPSS.

**Table No. 1: For the survey study**

Target Group	Number	Date of survey study	The Study Aims To:
Faculty Members	78	23 / 10 / 2024	The Impact of TQM on Sustainable Development

**Table No. 2: Study Variables**

Variables	Reliability and Validity Rate
TQM	0.978
Team Building	0.934
Customer Focus	0.952
Staff Training and Development	0.975
Performance Appraisal and Evaluation	0.947
Removing Obstacles	0.959
Sustainable Development	0.915

*Prepared by the researcher by spss app.*

It is clear from the previous table (Table No. 2) that the Cronbach's alpha coefficient for stability for all study variables is greater than to  $\alpha(0.06)$  which indicates that the study scales enjoy stability, whether the scales of the dimensions of the independent variable "Total Quality Management" or the dependent variable "Sustainable Development", and that the entire questionnaire enjoys a high degree of stability .)79 % (as it ranges

**Research Gap:**

The research gap in this topic is represented by the lack of recent scientific studies that address the impact of Total Quality Management on sustainable development in application to new facilities at Al Qadisiyah university. In general, previous studies that addressed the impact of Total Quality Management on sustainable development focused mainly on large and

medium-sized facilities, and there are not many studies that addressed this topic under study.

**Table No. 3: ANOVA Result**

Model	Sum of squares	DF	Mean square	F	Sig.
Regression	75.765	7	74.323	1.876	0/004
Residual	34.879	509	0.87		
Total	109	516			

*Prepared by the researcher by spss app.*

The results of the statistical analysis in both Table (3) showed a significant effect between Total Quality Management on the environmental dimension, one of the dimensions of the dependent variable, sustainable development. The correlation coefficient (R) reached 4.47% at a significance level of less than 1%, which means that there is a good significant correlation between the independent variable Total Quality Management on the environmental dimension, one of the dimensions of the dependent variable, sustainable development. As for the coefficient of determination (R<sup>2</sup>), it reached 720.2, meaning that 0.72% of the changes in the environmental dimension resulted from the change in the level of Total Quality Management, and at the same time it means that 4.00% of the changes in the environmental dimension were due to other factors. This is evidence of a direct effect between the independent variable Total Quality Management on the environmental dimension, one of the dimensions of the dependent variable, sustainable development. The significance of this effect is confirmed by the calculated F value, which reached (0.040) with (120) degrees of freedom, which is significant at a significance level of (222.2). This is interpreted as the university administration producing environmentally friendly products, with the establishment of systems that work to reduce pollution in the environment.

**Table No. 4: Age and Experience Discrepancies Report**

Age		TQM	ASD
32 years	Mean	5.76	5.876
	N	170	171
	Std.Devition	0.09	0.98
33-41 years	Mean	4.765	4.768
	N	151	154
	Std.Devition	0.756	0.769
42-45 years	Mean	4.970	4.968
	N	154	154
	Std.Devition	0.898	0.879
46-49 years	Mean	5.987	5.913
	N	409	411
	Std.Devition	0.756	0.778
50-53 years	Mean	4.64	5.90
	N	547	576

	Std.Devition	0.53	0.98
Total	Mean	4.86	4.86
	N	309	309
	Std.Devition	0.35	0.38
Differences	Mean	6.35	6.87
	N	135	136
	Std.Devition	0.721	No difference

Prepared by the researcher by spss app.

The correlation coefficient (R) reached 0.44% at a significance level of less than 1%, which means that there is a good correlation with a direct significant relationship between the independent variable Total Quality Management and the dependent variable Sustainable Development.

As for the coefficient of determination (R), it reached 702.2, meaning that 70% of the changes in sustainable development are due to the change in the level of Total Quality Management. At the same time, it means that 00% of the changes in sustainable development are due to other factors. This is evidence of the existence of a direct effect of the independent variable Total Quality Management on the dependent variable Sustainable Development.

The significance of this effect is also confirmed by the calculated F value, which reached 440.0 with degrees of freedom (120 df), which is significant at a significance level of 222.2. It is interpreted that Total Quality Management affects sustainable development. Which led to growth in the university's revenues and improved the organizational structure of the new establishments.

Accordingly, we reject the null hypothesis H0 and accept the positive alternative hypothesis H1, which states There is a significant positive effect of total quality management on sustainable development applied to new establishments at Al Qadisiyah university.

**Results of the first sub-hypothesis of the first main hypothesis**

There is no significant positive effect of total quality management on the economic dimension, one of the dimensions of the dependent variable, sustainable development applied to new establishments at Al Qadisiyah university

**V. THE RESULT**

- There is a statistically significant positive impact of TQM on sustainable development when applied to the new facilities at Al Qadisiyah university
- There is a statistically significant positive impact of TQM on the economic dimension of sustainable development
- There is a statistically significant positive impact of TQM on the social dimension of sustainable development

- There is a statistically significant positive impact of TQM on the environmental dimension of sustainable development
- There are no differences in the impact of TQM on sustainable development due to demographic factors

**VI. CONCLUSION**

The study concludes that TQM has a significant positive impact on sustainable development when applied to the new facilities at Al Qadisiyah university. The study provides valuable insights and recommendations for enhancing TQM practices and achieving sustainable development in higher education institutions.

**RECOMMENDATIONS**

- 1- Encourage senior management and employees to participate in implementing TQM in the new facilities
- 2- Link the university's outputs to the labor market and community service
- 3- Promote the use of modern technologies for continuous improvement
- 4- Conduct further studies to measure other dimensions of TQM
- 5- Create a conducive environment for understanding sustainable development culture
- 6- Analyze strengths, weaknesses, opportunities, and threats in the new facilities

**General Recommendations**

- 1- Promote organizational commitment to continuous quality improvement at the national level.
- 2- Ensure the comprehensive and appropriate application of TQM in all organizations
- 3- Develop structures, policies, and operational plans to ensure the efficiency of TQM
- 4- Develop training programs to improve and track the results of TQM implementation

**REFERENCES**

[1] The study references a variety of Arabic sources, including books, journal articles, and conference papers, related to TQM, sustainable development, and higher education.

[2] Ibrahim, Aida Fouad, (2020), "Total Quality Management, Arab Republic of Egypt, Ministry of Education", National Conference on Higher Education, p. 40 .

[3] Abu Amer, Fatina, (2020), "The Role of Total Quality in Higher Education Institutions in the State of Kuwait", Ramah Journal of Research and Studies, Vol. 10, pp. 047-024 .

[4] Ahmed, Ibrahim Ahmed, (2020), "Total Quality in Educational and School Administration", Dar

- Al-Wafa Dunya for Printing and Publishing, Alexandria .
- [5] Ben Ashour, Al-Zahra, (2020), "The Importance of Total Quality Management in Higher Education Institutions", *Journal of Human and Social Sciences*, Vol. 00, No. 0, pp. 040-074 .
- [6] Jabari, Fadia, and others, (2020), "The Impact of Service Quality on Customer Satisfaction Case study of the agency affiliated to the regional directorate of the Algerian Insurance Company, Tlemcen, Algeria, pp. 071-001 .
- [7] Arab Republic of Egypt, (2000), "National Authority for Quality Assurance and Accreditation of Education, Document of Standards for Quality Assurance and Accreditation of Educational Institutions", p. 31 .
- [8] Al-Haddad, Hassoun Mohammed Ali, (2008), "The Impact of Total Quality Management on Sustainable Development in Higher Education in Iraq", *Journal of the College of Baghdad for Economic Sciences, University, Special Issue of the Joint Scientific Conference*, pp. 047-707 .
- [9] Hassan, Salah al-Din. Al-Maasher, Ziad Yousef, (2002), "The Relationship between Total Quality Management and Human Resources Fields and Its Impact on Performance, a Field Study in the Iraqi Engineering Sector", *Al-Nahda Magazine*, Vol. 00, No. 00, Jordan, p. 80 .
- [10] Al-Khashabi, Ali Al-Sayed, (2002), "New Horizons in Arab University Generalization", *Dar Al-Fikr Al-Arabi*. Cairo, p. 40 .
- [11] Al-Riyami, Ali bin Saeed, and Al-Saqri, Nasser bin Abdullah bin Salem, (2002), "Omani Cultural Heritage and Sustainable Development: The Role of Research Institutions and the Efforts of Specialized Civil Society Organizations". *Journal of Performance and Social Sciences*, Vol. 07, No. 0, pp. 47-77 .
- [12] Al-Shadhili Nahed, (2001), "Higher Education and Meeting the Requirements of Sustainable Development", *Journal of Education and Development* 70 ,
- [13] Year 07, Educational Services Consulting Office .
- [14] Abbas, Mahmoud Al-Sayed, (2027 AD), "Total Quality Management as an Approach to Developing Secondary Education in Egypt", *Education and Development Magazine*, Issue 07, Vol. 07, pp. 014